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EXAMINER

HERNANDEZ, NELSON D

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,026

Applicant(s)

AMERSON ET AL.

Examiner

Nelson D. Hernandez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11-18 and 23-34 is/are rejected.
- 7) ☒ Claim(s) 7-10 and 19-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. **Claims 25-29 and 32** are rejected under 35 U.S.C. 102(a) as being anticipated by Melen, US Patent 6,320,979 B1.

Regarding **claim 25**, Melen discloses an image processing system (Fig. 6), comprising: an image storage device (Fig. 6: 604); at least two similar images contained in the image storage device; a processor (Fig. 6: 602) coupled to the image storage device; a code segment for processing the at least two similar images, where the at least two similar images are combined to form a new image having at least one characteristic different from corresponding characteristics of the at least two images (Fig. 8); and an output element for rendering the new image (Image is output to memory in fig. 6: 606) (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

Regarding **claim 26**, Melen teaches that the image processing system can be contained within an image capture device such that the at least two similar images are captured by the image capture device and placed in the image storage device (Col. 4, lines 27-46).

Regarding **claim 27**, Melen discloses the same as in claim 25. Therefore, grounds for rejecting claim 25 apply here.

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Regarding **claim 28**, Melen discloses that the image storage device for one of the at least two similar images is the image sensor of the image capture device (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

Regarding **claim 29**, Melen discloses that the at least one characteristic is different depth of field (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

Regarding **claim 32**, Melen discloses that the at least two similar images differ primarily in focus (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 2, 13 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Melen, US Patent 6,320,979 B1 in view of Sato, US Patent 6,525,761 B2.

Regarding **claim 1**, Melen discloses a digital image capture and processing system, comprising: a lens (Figs. 3A: 100 and 3B: 100) coupled to a lens control element (Figs. 3A: 306 and 3B: 306); an image sensor (Figs. 3A: 300 and 3B: 300) configured to capture images from the lens; and a memory element (Fig. 6: 604) and a processor (Fig. 6: 602) coupled to the lens control element, the memory element including image capture software, where the image capture software cause the lens and the image sensor to capture at least two images, each of the at least two images

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captured using a varying parameter and stored in a memory (Fig. 6: 604), where the at least two images are combined to form a new image having at least one characteristic different from corresponding characteristics of the at least two images (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3). Melen does not explicitly disclose that the at least two image captured using a varying parameter are stored as a single file.

However, Sato teaches an image capturing system (Fig. 1), wherein the images captured with different conditions are stored as a single file (See figs. 19 and 20) so as to maintain correspondence between said captured images (Col. 8, line 60 – col. 9, line 41).

Therefore, taking the combined teaching of Melen in view of Sato as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melen by storing the at least two images having different parameters in a single file. The motivation to do would help the digital image capture and processing system to maintain correspondence between related images captured using a varying parameter as suggested by Sato (Col. 8, line 60 – col. 9, line 41).

Regarding **claim 2**, Melen discloses that the varying parameter is focus distance (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

Regarding **claim 13**, Melen discloses a method for operating a digital image capture and processing device, the method comprising the steps of: coupling a lens (Figs. 3A: 100 and 3B: 100) to a lens control element (Figs. 3A: 306 and 3B: 306); coupling an image sensor (Figs. 3A: 300 and 3B: 300) to the lens; capturing at least two images, each of the at least two images captured using a varying parameter, where the

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at least two images are combined to form a new image having at least one characteristic different from corresponding characteristics of the at least two images (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3). Melen does not explicitly disclose storing the at least two images as a single file.

However, Sato teaches an image capturing method and system (Fig. 1), wherein the images captured with different conditions are stored as a single file (See figs. 19 and 20) so as to maintain correspondence between said captured images (Col. 8, line 60 – col. 9, line 41).

Therefore, taking the combined teaching of Melen in view of Sato as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melen by storing the at least two images having different parameters in a single file. The motivation to do would help the digital image capture and processing system to maintain correspondence between related images captured using a varying parameter as suggested by Sato (Col. 8, line 60 – col. 9, line 41).

Regarding **claim 14**, Melen discloses that the varying parameter is focus distance (Col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

5. **Claims 3-6 and 15-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Melen, US Patent 6,320,979 B1 in view of Sato, US Patent 6,525,761 B2 and further in view of Fredlund, US 2003/0128287 A1.

Regarding **claim 3**, the combined teaching of Melen in view of Sato does not teach a user interface associated with the image capture software, where the user

interface allows the user of the device to scroll through the at least two images and select one of the images as the new image.

However, Fredlund teaches a system and camera (Fig. 1) that capture a plurality of images capture with different parameters and stores them in a memory (Fig. 1: 324), whereby using an interface (Fig. 3: 360), the user is able to scroll through the captured images and select one or more of said captured images to create a composed image (Page 2, ¶ 0021-0022; page 3, ¶ 0031 and ¶ 0034; page 4, ¶ 0035).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Fredlund as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by having an interface to scroll through the captured images and select one or more of said captured images to create a composed image. The motivation to do so would help the user to select the preferred images to be composed into a new image as suggested by Fredlund (Page 3, ¶ 0031 and ¶ 0034).

Regarding **claim 4**, the combined teaching of Melen in view of Sato does not teach a user interface associated with the image capture software, where the user interface allows the user to combine attributes of the at least two images to form the new image.

However, Fredlund teaches a system and camera (Fig. 1) that capture a plurality of images capture with different parameters and stores them in a memory (Fig. 1: 324), whereby using an interface (Fig. 3: 360), the user is able to scroll through the captured

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images and select one or more of said captured images to create a composed image (Page 2, ¶ 0021-0022; page 3, ¶ 0031 and ¶ 0034; page 4, ¶ 0035).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Fredlund as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by having an interface to scroll through the captured images and select one or more of said captured images to create a composed image. The motivation to do so would help the user to select the preferred images to be composed into a new image as suggested by Fredlund (Page 3, ¶ 0031 and ¶ 0034).

Regarding **claim 5**, the combined teaching of Melen in view of Sato and further in view of Fredlund teaches that the user interface allows the different focus of each of the at least two images to be blended into the new image that includes an apparent focus between the two focus distances (See Melen, col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

Regarding **claim 6**, Melen discloses a lens position indicator configured to indicate the position of the lens for each of the at least two images (Melen teaches calculating the position of the lens by using the contrast in the image data obtained, and also calculates the focus distance using the same); a focus determination element configured to analyze each of a plurality of regions associated with each of the at least two images, the focus determination element also configured to determine whether each of the plurality of regions are in focus (See Fig. 8); and where the image capture

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software assembles each of the in-focus regions into the new image (Col. 4, line 47 – col. 6, line 21).

Regarding **claim 15**, the combined teaching of Melen in view of Sato does not teach scrolling through the at least two images; and selecting one of the images as the new image.

However, Fredlund teaches a system and camera (Fig. 1) that capture a plurality of images capture with different parameters and stores them in a memory (Fig. 1: 324), whereby using an interface (Fig. 3: 360), the user is able to scroll through the captured images and select one or more of said captured images to create a composed image (Page 2, ¶ 0021-0022; page 3, ¶ 0031 and ¶ 0034; page 4, ¶ 0035).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Fredlund as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by having an interface to scroll through the captured images and select one or more of said captured images to create a composed image. The motivation to do so would help the user to select the preferred images to be composed into a new image as suggested by Fredlund (Page 3, ¶ 0031 and ¶ 0034).

Regarding **claim 16**, the combined teaching of Melen in view of Sato does not teach combining attributes of the at least two images to form the new image.

However, Fredlund teaches a system and camera (Fig. 1) that capture a plurality of images capture with different parameters and stores them in a memory (Fig. 1: 324), whereby using an interface (Fig. 3: 360), the user is able to scroll through the captured

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images and select one or more of said captured images to create a composed image (Page 2, ¶ 0021-0022; page 3, ¶ 0031 and ¶ 0034; page 4, ¶ 0035).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Fredlund as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by having an interface to scroll through the captured images and select one or more of said captured images to create a composed image. The motivation to do so would help the user to select the preferred images to be composed into a new image as suggested by Fredlund (Page 3, ¶ 0031 and ¶ 0034).

Regarding **claim 17**, the combined teaching of Melen in view of Sato and further in view of Fredlund teaches that the blending each of the at least two images into the new image that includes an apparent focus between the focus distance of each of the at least two images (See Melen, col. 2, line 61 – col. 3, line 15; col. 3, line 45 – col. 5, line 3).

Regarding **claim 18**, indicating the position of the lens for each of the at least two images (Melen teaches calculating the position of the lens by using the contrast in the image data obtained, and also calculates the focus distance using the same); dividing each of the at least two images into a plurality of regions (See Fig. 8); analyzing each of the regions to determine whether each of the plurality of regions are in focus (This is made by analyzing the contrast on each region); and assembling each of the in-focus regions into the new image (Col. 4, line 47 – col. 6, line 21).

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6. **Claims 11 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Melen, US Patent 6,320,979 B1 in view of Sato, US Patent 6,525,761 B2 and further in view of Ockman, US Patent 6,816,627 B2.

Regarding **claim 11**, the combined teaching of Melen in view of Sato does not teach that a first of the at least two images is captured using conventional photography and a second of the at least two images is captured using infrared photography.

However, Ockman teaches a system for composing images wherein at least one of the images is taken using visible light and the other is taken using infrared exposure (Col. 7, lines 21-61).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Ockman as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by composing images taken using visible light with images taken using infrared exposure. The motivation to do so would help to create composite image simultaneously displaying all of the pertinent information of the original image as suggested by Ockman (Col. 3, lines 32-53).

Regarding **claim 23**, the combined teaching of Melen in view of Sato does not teach capturing a first of the at least two images using conventional photography; and capturing a second of the at least two images using infrared photography.

However, Ockman teaches a system for composing images wherein at least one of the images is taken using visible light and the other is taken using infrared exposure (Col. 7, lines 21-61).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Ockman as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by composing images taken using visible light with images taken using infrared exposure. The motivation to do so would help to create composite image simultaneously displaying all of the pertinent information of the original image as suggested by Ockman (Col. 3, lines 32-53).

7. **Claim 30** is rejected under 35 U.S.C. 103(a) as being unpatentable over Melen, US Patent 6,320,979 B1 in view of Takahashi, US 2002/007144 A1.

Regarding **claim 30**, Melen does not explicitly disclose that the at least one characteristic is different exposure.

However, Takahashi discloses a method of producing a video recording with improved dynamic range comprising: providing a video sensor (Fig. 1: 103) capable of converting an optical image into a video signal comprising a sequence of video fields or frames (See fig. 3) representing the optical image (Page 2, ¶ 0045); operating said video sensor to capture an optical image and simultaneously varying the amount of light (Page 6, ¶ 0072) received by said video sensor during the time frame of each video field or frame so that the resulting video signal representing said captured optical image will constitute a sequence of video fields or frames comprising at least first and second fields or frames representing substantially different exposure values of the captured image occurring repetitively in said sequence (Page 3, ¶ 0050; page 6, ¶ 0072).

Therefore, taking the combined teaching of Melen in view of Takahashi as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melen by capturing images with different exposure. The motivation to do so would help the digital image capture and processing system to increase the dynamic range of the images as suggested by Takahashi (Page 2, ¶0020).

8. **Claims 12 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Melen, US Patent 6,320,979 B1 in view of Sato, US Patent 6,525,761 B2 and further in view of Cesana, US Patent 6,466,220 B1.

Regarding **claim 12**, the combined teaching of Melen in view of Sato does not teach that the varying parameter is the number of bits used by each pixel in the image sensor.

However, Cesana teaches a method for combining images having different bits per pixel so as to create a new image with a common data format (Col. 4, line 21 – col. 5, line 10).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Cesana as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by composing images having different bits per pixels to create a new image with a common data format. The motivation to do so would help the digital image capture and processing system to simultaneously display several graphic regions with different color formats in the composed image as suggested by Cesana (Col. 1, lines 25-48).

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Regarding **claim 24**, the combined teaching of Melen in view of Sato does not teach varying the number of bits used by each pixel in the image sensor.

However, Cesana teaches a method for combining images having different bits per pixel so as to create a new image with a common data format (Col. 4, line 21 – col. 5, line 10).

Therefore, taking the combined teaching of Melen in view of Sato and further in view of Cesana as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by composing images having different bits per pixels to create a new image with a common data format. The motivation to do so would help the digital image capture and processing system to simultaneously display several graphic regions with different color formats in the composed image as suggested by Cesana (Col. 1, lines 25-48).

9. **Claim 31** is rejected under 35 U.S.C. 103(a) as being unpatentable over Melen, US Patent 6,320,979 B1 in view of Brooksby, US 2003/0117412 A1.

Regarding **claim 31**, Melen does not explicitly disclose that the at least one characteristic is different exposure.

However, Brooksby teaches a method of composing images having different illumination levels to create a new image avoiding the use of pixels too dark or too bright so as to extend the dynamic illumination range of an imaging system by generating a high dynamic illumination range floating-point representation of the image (Page 1, ¶ 0016; page 2, ¶ 0017-0022).

Therefore, taking the combined teaching of Melen in view of Brooksby as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by composing images having different illumination levels to create a new image. The motivation to do so would help to extend the dynamic illumination range of an imaging system by generating a high dynamic illumination range floating-point representation of the image by avoiding the use of pixels too dark or too bright as suggested by Brooksby (Page 1, ¶ 0016; page 2, ¶ 0017-0022).

10. **Claims 33 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Melen, US Patent 6,320,979 B1 in view of Ockman, US Patent 6,816,627 B2.

Regarding **claim 33**, Melen does not explicitly disclose that at least two similar images differ primarily in color.

However, Ockman teaches a system for composing images wherein at least one of the images is taken using visible light colors and the other is taken using only infrared color component (Col. 7, lines 21-61).

Therefore, taking the combined teaching of Melen in view of Ockman as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by composing images taken using different color components. The motivation to do so would help to create composite image simultaneously displaying all of the pertinent information of the original image as suggested by Ockman (Col. 3, lines 32-53).

Regarding **claim 34**, Melen does not explicitly disclose that a first of the at least two similar images is captured using visible light and the second of the at least two similar images is captured using infrared exposure.

However, Ockman teaches a system for composing images wherein at least one of the images is taken using visible light and the other is taken using infrared exposure (Col. 7, lines 21-61).

Therefore, taking the combined teaching of Melen in view of Ockman as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital image capture and processing system by composing images taken using visible light with images taken using infrared exposure. The motivation to do so would help to create composite image simultaneously displaying all of the pertinent information of the original image as suggested by Ockman (Col. 3, lines 32-53).

Allowable Subject Matter

11. **Claims 7-10 and 19-22** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Regarding **claims 7 and 19**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest a depth of field

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indicator assigned to each of the at least two images, where the depth of field indicator allows a user to determine a depth of field for each of the at least two images.

Regarding **claims 9 and 21**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest a distance indicator assigned to each of the regions, the distance indicator configured to assign a distance measurement to an alpha channel for each region.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez

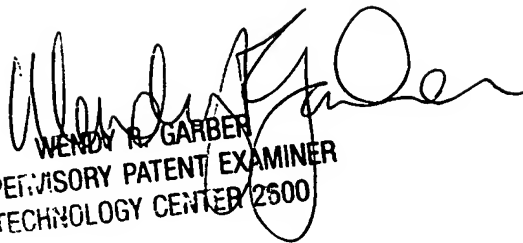
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Examiner
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NDHH
April 14, 2005


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